

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 11-246, Volume 7

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Flying Operations

**AIR FORCE AIRCRAFT DEMONSTRATIONS
(SAILPLANES)**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, and Air Force Instruction (AFI) 11-209, *Aerial Event Policy and Procedures*. It designates the Air Education and Training Command (AETC) as the lead command for sailplane demonstrations. It provides guidance and procedures for Air Force performance of sailplane aircraft demonstrations and mission capabilities demonstrations. It applies to all sailplane demonstration sorties, practice or actual, with or without an audience, at all altitudes. This instruction does not apply to the Air National Guard. With the exception of the associate instructor pilot program, this instruction does not apply to the Air Force Reserve Command. Requests for waivers must be submitted through the chain of command to the appropriate Tier waiver approval authority, and filed in accordance with AFI 33-360, *Publications and Forms Management*. According to AFI 11-200, *Aircrew Training Standardization/Evaluation, and General Operations Structure*, major commands (MAJCOM) will coordinate proposed MAJCOM-level supplements to this volume through AETC/A3V to USAF/A3O-AT for coordination prior to publication. (T-1). Field units below MAJCOM level will coordinate their supplements through their parent MAJCOM office of primary responsibility (OPR) for approval prior to publication. (T-1). Refer recommended changes and questions about this publication to the OPR, AETC/A3V, using the AF Form 847, *Recommendation for Change of Publication*. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located in the Air Force Records Information Management System (AFRIMS). (T-1). **Attachment 1** contains a glossary of the references and supporting information used in this publication. The use of the name or mark of any specific manufacturer,

commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This revision implements Tier waiver authorities IAW AFI 33-360 and contains administrative updates for the OPR change and references.

Chapter 1

GENERAL INFORMATION

1.1. Introduction. USAF/A3O designates AETC as lead command to establish standard sailplane aerial demonstration profiles. This instruction provides specific maneuvers, sequences, and parameters governing the execution of these sailplane aerial demonstrations. Other MAJCOMs flying sailplane aerial demonstrations will comply with this instruction. All sailplanes are considered the same type aircraft.

1.2. Deleted.

1.3. Responsibilities:

1.3.1. **MAJCOM Commander (MAJCOM/CC).** MAJCOM/CC approves the standard demonstration profiles in this instruction.

1.3.2. **MAJCOM/A3.** MAJCOM/A3 approves uniquely tailored profiles for specific military or civilian events. See **paragraph 1.4.**

1.3.3. MAJCOM Aerial Events Office:

1.3.3.1. Coordinates event and participation approval of all sailplane demonstrations according to AFI 11-209.

1.3.3.2. Coordinates MAJCOM/A3 approval of uniquely tailored profiles, if required.

1.3.4. Wing Commander (or equivalent):

1.3.4.1. Certifies demonstration pilots. (T-2).

1.3.4.2. Provides an aerial control team (ACT) when required by AFI 11-209. (T-2).

1.3.4.3. Provides an appropriate ground crew to recover and ground handle sailplanes at the landing site. (T-2).

1.3.4.4. Obtains and maintains required Federal Aviation Administration (FAA) approvals and waivers according to AFI 11-209. (T-2).

1.3.5. Demonstration Pilot:

1.3.5.1. Performs aerial demonstrations according to this instruction, AFI 11-209, and AFI 11-2Sailplane, Volume 3, *Sailplane Operations Procedures*.

1.3.5.2. Cancels any demonstration when the assigned performance location compromises safety or exceeds aircraft performance capabilities.

1.3.5.3. For off-station demonstration sites, accomplishes either a practice demonstration or aerial survey prior to the demonstration.

1.3.6. Aerial Control Team. ACT responsibilities are listed in AFI 11-209. In addition, the ACT:

1.3.6.1. Accomplishes the predemonstration briefing according to [Attachment 2](#). All participating demonstration pilots, tow pilots, and ACT members will attend the briefing.

1.3.6.2. Performs a thorough landing area survey prior to a demonstration. **Exception:** The landing area survey is not required for designated landing areas or frequently used landing sites, as determined by the unit.

1.3.6.3. Monitors sailplane altitude and directs a maneuver abort or demonstration cancellation, when required.

1.4. Uniquely Tailored Profiles. When specific military or civilian events require a uniquely tailored profile, units will explain why the standard profiles are not appropriate and include the following information in the approval request (T-2):

1.4.1. Specific maneuver profile desired (maneuvers and sequence).

1.4.2. Intended point of landing relative to the show line, if applicable.

1.4.3. Unique ACT procedures, if applicable.

1.5. Suggesting Profile Changes:

1.5.1. Units submit suggested profile changes or additional profiles in the same format as the profiles in [Attachment 3](#). Unit commanders may not authorize profile changes for actual demonstrations.

1.5.2. Wing commanders may authorize certified demonstration pilots to practice and evaluate proposed profile changes prior to submitting a change proposal.

Chapter 2

AIRCREW TRAINING AND CERTIFICATION

2.1. Demonstration Pilot Training and Certification. Units will train and certify demonstration pilots as sportsman or intermediate aerobatic pilots before wing commander (or equivalent) certification as demonstration pilots. (T-2). AFI 11-2Sailplane, Volume 1, *Sailplane Aircrew Training*, specifies sportsman and intermediate aerobatic pilot training requirements. Units may specify additional training requirements before demonstration pilot certification.

2.2. Aerial Control Team Training and Certification. Units will train and certify ACT members for duties required to support sailplane demonstrations according to unit-approved training plans. (T-2).

Chapter 3

STANDARD DEMONSTRATION PROFILES

3.1. General. Attachment 3 describes the standard sailplane demonstration profiles. The profiles require either sportsman or intermediate-certified demonstration pilots. Each profile includes approved maneuvers and the sequence in which they are performed. All maneuvers flown in aerobatic demonstrations are derived from the International Aerobatic Club (IAC) official contest rules (available at: <http://members.iac.org/contests/rulebook.html>) and the Aresti System Glider Aerobatic Figures catalog (available at: <http://www.arestisystem.com>), or a MAJCOM-approved aerobatic training program. Pilots will not alter approved demonstration profiles unless necessary due to safety or weather considerations, except as follows:

3.1.1. Pilots will maintain final glide distance to an appropriate landing site. Pilots may adjust minimum altitudes upwards based on current atmospheric conditions to maintain final glide distance. If the entry conditions are not met for any maneuver, the pilot will execute a wings-level pass and reattempt the maneuver entry or transition to the next maneuver. Pilots will not makeup for maneuvers not accomplished in the prescribed sequence.

3.1.2. The demonstration sequences are designed so each maneuver is always performed in the same direction with respect to the wind. As a result, the show may be oriented in any of four directions, depending on the wind and the crowd line, without considering it a profile change.

3.1.3. The demonstration profiles are designed to fit in a minimum aerobatic box of dimensions 3,300 feet long by 3,300 feet wide by 4,500 feet tall. Pilots may increase the height of the box to accommodate all maneuvers in the profile. Pilots may also increase the lateral boundaries of the box for specific demonstrations. Minimum show lines will not be compromised.

3.2. Weather Requirements. Pilots will maintain visual meteorological conditions according to AFI 11-202, Volume 3, *General Flight Rules*, throughout the demonstration.

3.2.1. The minimum weather for a demonstration is a ceiling at least 3,500 feet above ground level (AGL), 5 miles visibility, and a discernible horizon.

3.2.2. The minimum weather for a high speed pass is a ceiling at least 1,500 feet AGL and 3 miles visibility.

3.3. Airspace Requirements. In addition to the aerobatic box dimensions, airspace must be designated for aerotow and holding prior to the demonstration.

3.4. Show Lines. AFI 11-209 prescribes show line requirements.

3.5. Minimum Airspeed. AFI 11-209 prescribes minimum airspeed requirements.

3.6. Minimum Altitudes. The minimum altitude guidance in AFI 11-202, Volume 3, and AFI 11-209 apply. In addition, pilots may only perform aerobatics down to their certified altitude

(according to AFI 11-2Sailplane, Volume 1), or within the airspace approved for aerobatics, whichever is higher.

BURTON M. FIELD, Lt Gen, USAF
DCS, Operations, Plans and Requirements

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPD 11-2, *Aircrew Operations*, 19 January 2012

AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 January 2012

AFI 11-202, Volume 3, *General Flight Rules*, 22 October 2010

AFI 11-209, *Aerial Event Policy and Procedures*, 4 May 2006

AFI 11-2Sailplane, Volume 1, *Sailplane Aircrew Training*, 15 April 2009

AFI 11-2Sailplane, Volume 3, *Sailplane Operations Procedures*, 2 February 2011

AFMAN 33-363, *Management of Records*, 1 March 2008

Aresti System Glider Aerobatic Figures Catalog (<http://www.arestisystem.com>)

IAC Official Contest Rule Book (<http://members.iac.org/contests/rulebook.html>)

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACT—aerial control team

AETC—Air Education and Training Command

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AGL—above ground level

DNIF—duties not including flying

FAA—Federal Aviation Administration

FCIF—flight crew information file

IAC—International Aerobatic Club

MAJCOM—major command

MAJCOM/A3—major command/director of operations

MAJCOM/CC—major command/commander

NOTAM—notice to Airmen

OPR—office of primary responsibility

RDS—records disposition schedule

Terms

Aerotow—A sailplane takeoff and climb process where the sailplane is towed through the air by a powered aircraft.

Aerial control team—A qualified individual or team of individuals who oversees and controls the United States Air Force aerial participation, and the aerial participation by other organizations, in selected public or military events. (AFI 11-209)

Crowd line—A physical barrier or a line marked on the ground which, with added policing, serves as a restraining line. The crowd line is placed at a specified distance from the show line. The barrier must prevent spectators or other nonparticipants from encroaching upon the show line.

Demonstration pilot—A pilot trained and certified to perform aerial demonstrations.

Demonstration profile—A description of the approved maneuvers and the sequence in which they are performed during an aerial demonstration.

High—speed pass—Demonstration maneuver designed to position a sailplane in front of the crowd to facilitate taking photographs.

Intermediate aerobatic maneuvers—Aerobatic maneuvers flown in IAC competitions within the intermediate competitive category.

International Aerobatic Club—Civilian organization that acts as the governing body in concurrence with the FAA to establish rules and procedures for powered and nonpowered aerobatics.

Landing area survey—Visual observation of the designated sailplane landing area for hazards prior to a demonstration.

Show line—A prominent, readily-visible ground reference such as a river, runway, taxiway, canal, breakwater, road, or any straight line that enhances pilot orientation during aerobatic routines.

Sportsman aerobatic maneuvers—Aerobatic maneuvers flown in IAC competitions within the sportsman competitive category.

Attachment 2**PREDEMONSTRATION BRIEFING GUIDE****A2.1. General:**

- A2.1.1. Time hack.
- A2.1.2. Call signs and tail numbers.
- A2.1.3. Weather and status (takeoff, en route, recovery, landing, alternates).
- A2.1.4. Notice to airmen (NOTAM) review.
- A2.1.5. Mission overview.
- A2.1.6. Demonstration area and show layout. (Review site survey data, if applicable.)
- A2.1.7. Go/no-go (currencies, duties not including flying (DNIF), flight crew information file (FCIF), and read files).
- A2.1.8. Flight authorization and approval.
- A2.1.9. Spare procedures.

A2.2. Takeoff, Aerotow, Departure:

- A2.2.1. Tow hookup.
- A2.2.2. Takeoff and abort procedures.
- A2.2.3. Departure direction and holding.
- A2.2.4. Release procedures and altitude.

A2.3. Demonstration Profile:

- A2.3.1. Profile start parameters.
- A2.3.2. Profile maneuver parameters.
- A2.3.3. Minimum maneuver and recovery altitudes.
- A2.3.4. Maneuver aborts and repositions.
- A2.3.5. Mandatory radio calls.

A2.4. Arrival:

- A2.4.1. Traffic entry.
- A2.4.2. Pattern and landing.

A2.5. Abnormal Procedures:

- A2.5.1. Abort procedures.
- A2.5.2. Bailout or forced landing.
- A2.5.3. Weather transition plan.
- A2.5.4. Emergencies.

A2.5.5. ACT termination procedures.

A2.6. Debrief.

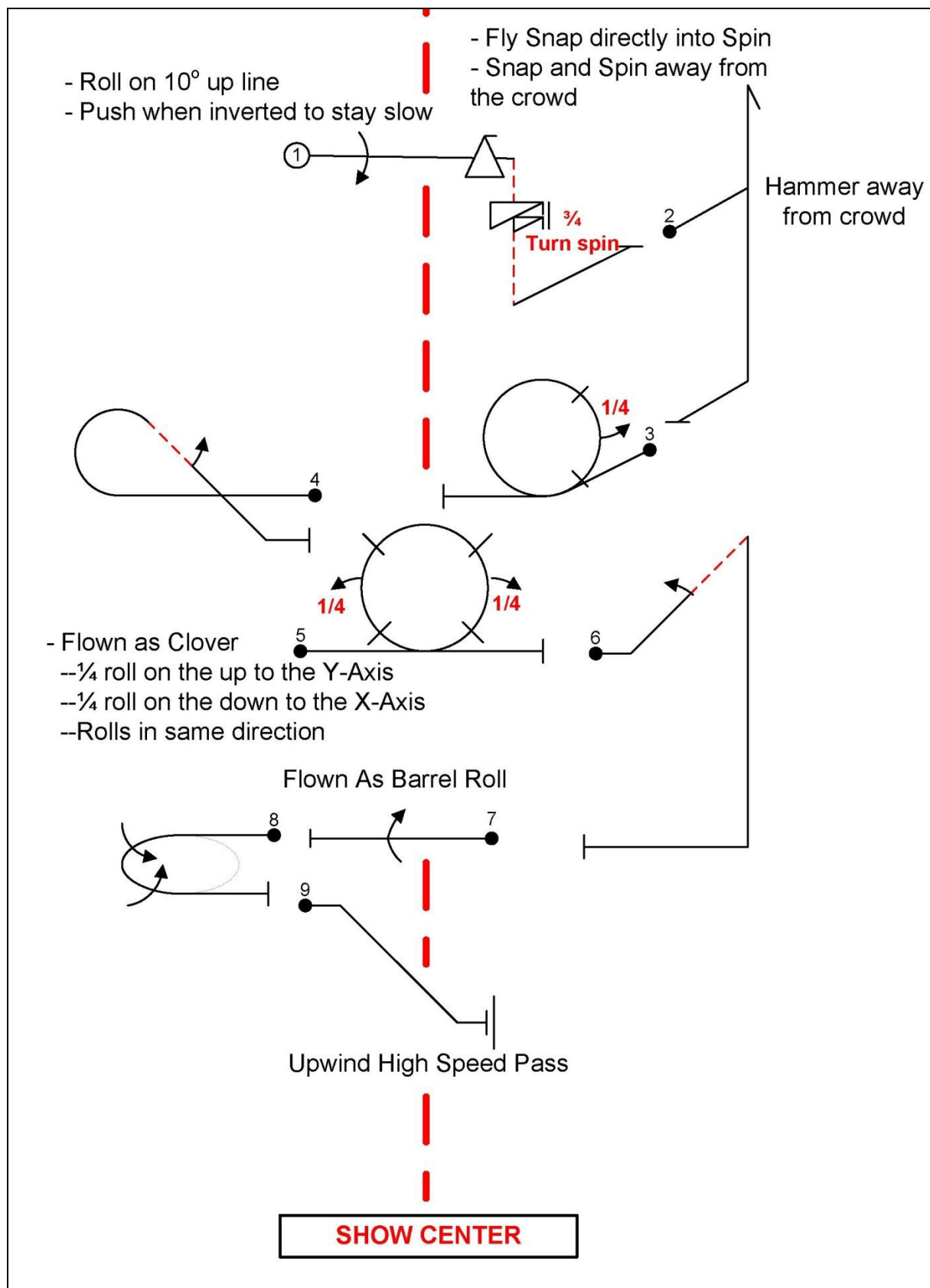
Attachment 3

DEMONSTRATION PROFILES

A3.1. Demonstration Profile 1 - Intermediate Category. [Figure A3.1](#) depicts demonstration profile 1. The profile includes the following maneuvers in sequence:

- A3.1.1. Full roll into a full snap roll that develops into a 3/4 turn spin.
- A3.1.2. Hammerhead.
- A3.1.3. One-fourth cloverleaf with a turn on the down line.
- A3.1.4. Half Cuban.
- A3.1.5. Cloverleaf with a 1/4 turn on the up line and a 1/4 turn on the down line.
- A3.1.6. Reverse shark's tooth.
- A3.1.7. Barrel roll.
- A3.1.8. Two 180-degree inside rolling turns.
- A3.1.9. High-speed pass.

Figure A3.1. Demonstration Profile 1 – Intermediate Category.



A3.2. Demonstration Profile 2 – Intermediate Category. **Figure A3.2** depicts demonstration profile 2. The profile includes the following maneuvers in sequence:

A3.2.1. Two-point roll.

A3.2.2. One-fourth cloverleaf with a turn on the up line with a positive snap that develops into a 3/4 turn spin.

A3.2.3. Reverse Cuban.

A3.2.4. Pull-pull-pull humpty with a 3/4 snap on the down line.

A3.2.5. Snap on the up line into a tumble.

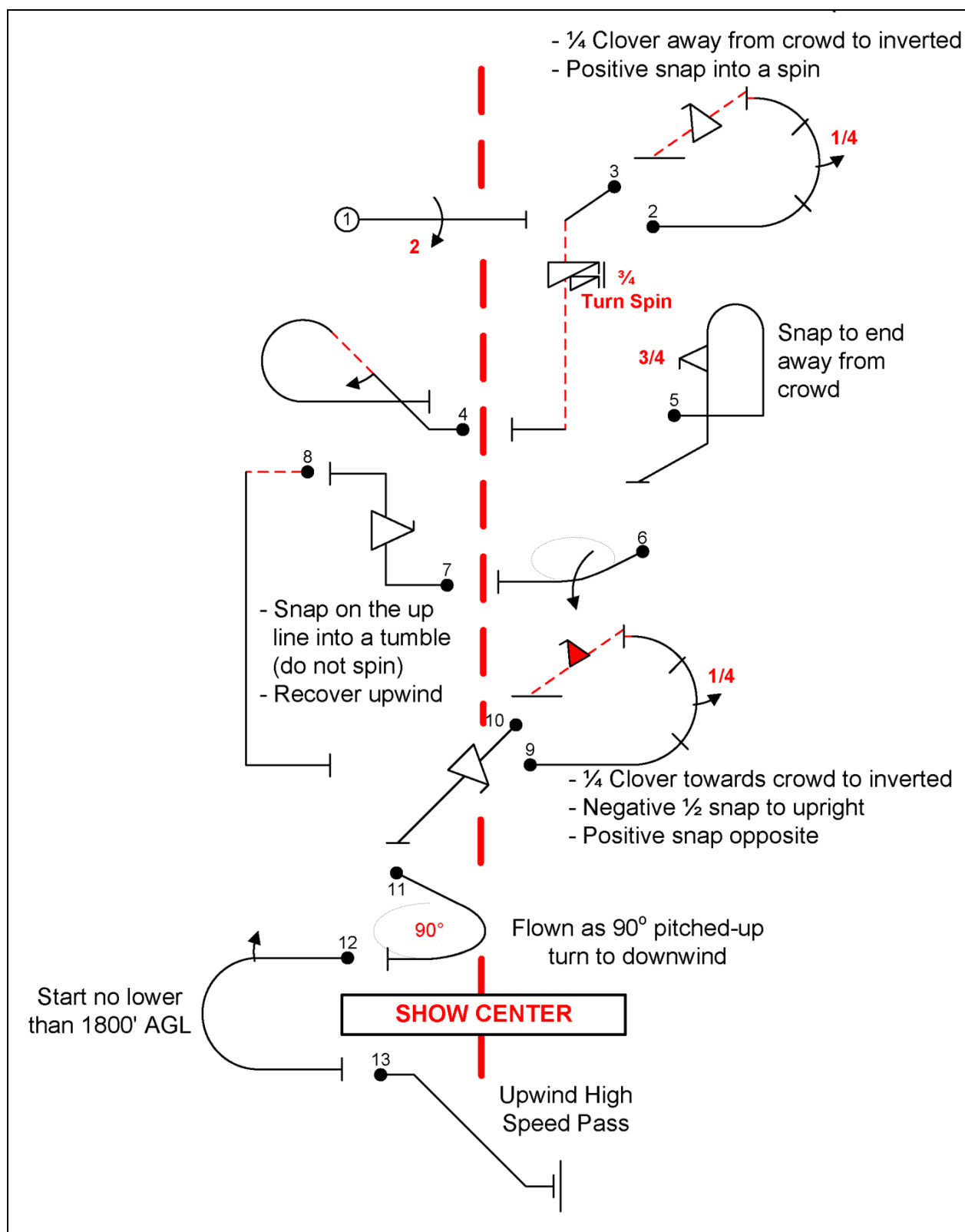
A3.2.6. One-fourth cloverleaf with a turn on the up line with a negative 1/2 snap to a positive snap roll.

A3.2.7. Ninety-degree pitched-up turn to downwind.

A3.2.8. Split-S.

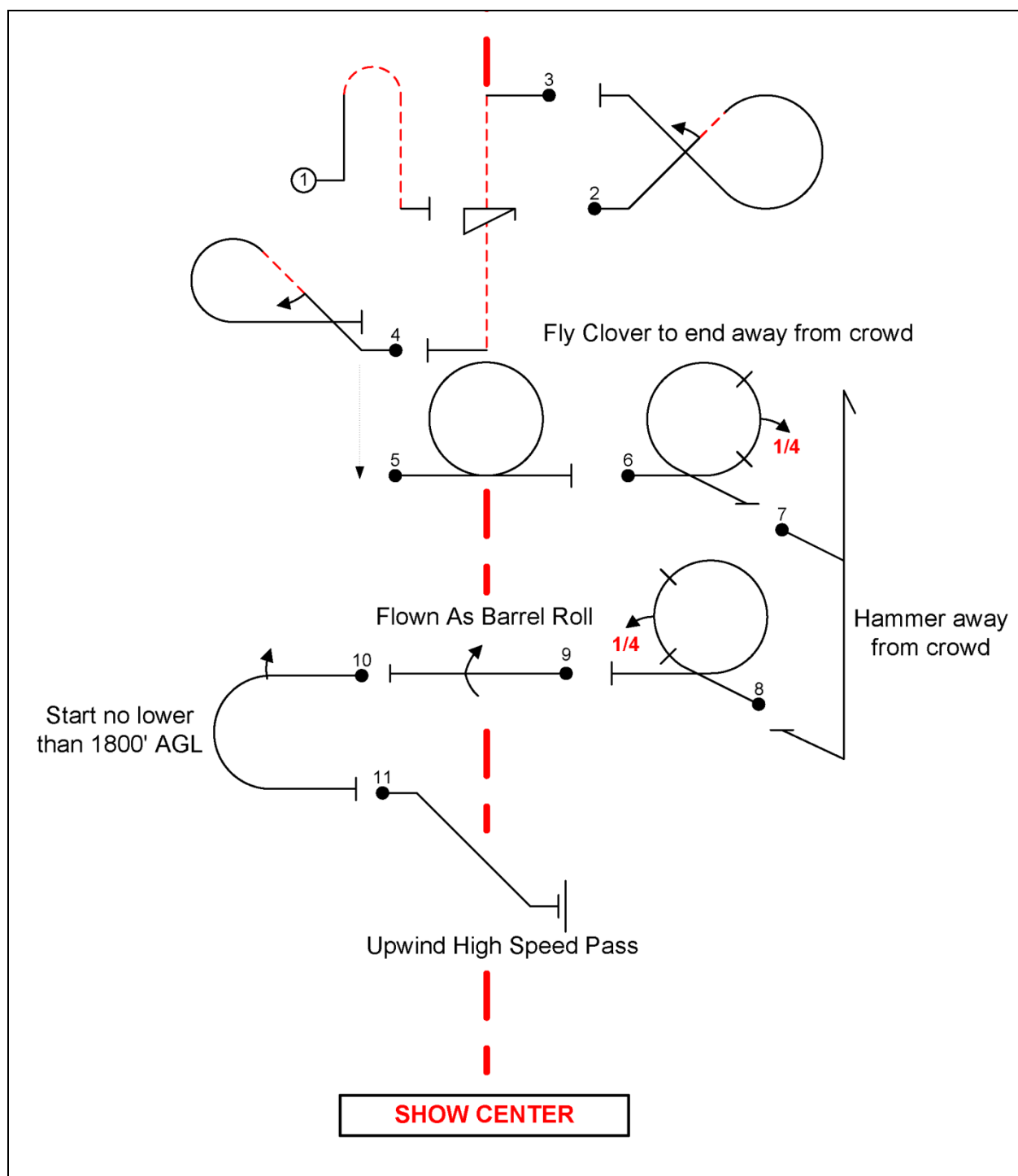
A3.2.9. High-speed pass.

Figure A3.2. Demonstration Profile 2 – Intermediate Category.



A3.3. Demonstration Profile 3 – Sportsman Category. [Figure A3.3](#) depicts demonstration profile 3. The profile includes the following maneuvers in sequence:

- A3.3.1. Pull-push-pull humpty.
- A3.3.2. Goldfish.
- A3.3.3. One-turn spin.
- A3.3.4. Reverse Cuban.
- A3.3.5. Loop.
- A3.3.6. One-fourth cloverleaf with a turn on the up line.
- A3.3.7. Hammerhead.
- A3.3.8. One-fourth cloverleaf with a turn on the up line.
- A3.3.9. Barrel roll.
- A3.3.10. Split-S.
- A3.3.11. High-speed pass.

Figure A3.3. Demonstration Profile 3 – Sportsman Category.

A3.4. Demonstration Profile 4 – Sportsman Category. Figure A3.4 depicts demonstration profile 4. The profile includes the following maneuvers in sequence:

- A3.4.1. Cuban 8.
- A3.4.2. Immellman.

A3.4.3. One-turn spin.

A3.4.4. Four 1/4 cloverleaves with a turn on the up line.

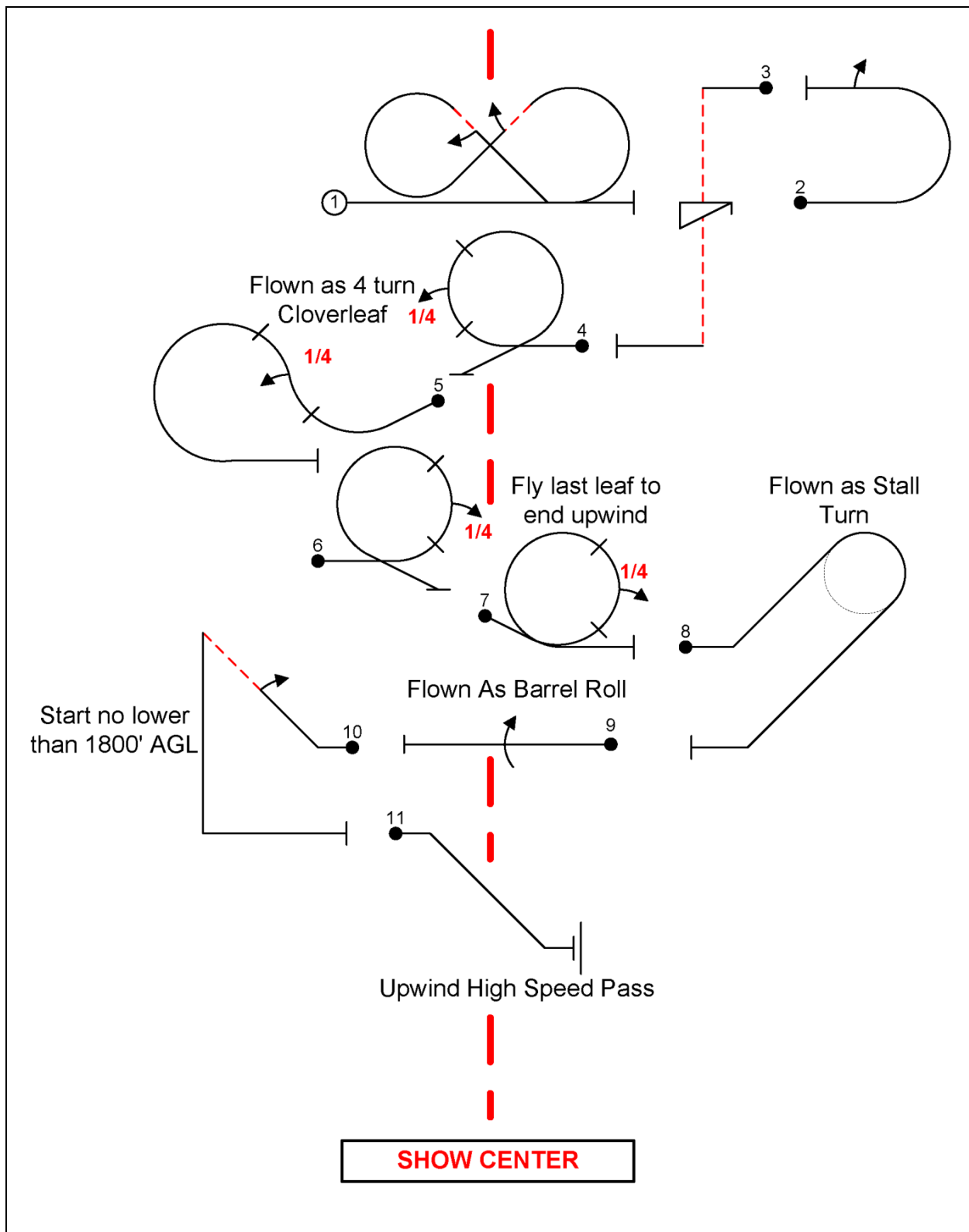
A3.4.5. Stall turn.

A3.4.6. Barrel roll.

A3.4.7. Reverse shark's tooth.

A3.4.8. High-speed pass.

Figure A3.4. Demonstration Profile 4 – Sportsman Category.



A3.5. Demonstration Profile 5. Demonstration profile 5 is a high-speed pass. The intent of this maneuver is to give the crowd a chance to take a photograph of the glider. Pilots will:

A3.5.1. Enter the show at a 45-degree angle approximately 1/2 mile from show center.

A3.5.2. Start the pass at least 1,500 feet AGL (rated pilots and civilian coaches) or 2,000 feet AGL (nonrated pilots) and fly the pass.

A3.5.3. Complete a descending dive so as to arrive at show center at or above the minimum authorized altitude.

A3.5.4. Complete the pass with a 3 to 4 G pullup and turn away from the crowd no closer than 500 feet to the crowd.

A3.5.5. Exit the pass on a climbing 45-degree angle opposite of the entry side.